REMARKS

Summary of the Office Action

Claims 1, 3, 6, 8 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gaalema (U.S. Patent No.: 4,507,674) (hereinafter "Gaalema") in view of Yutaka et al. (JP 3-104287) (hereinafter "Yutaka").

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Gaalema and Yutaka as applied to claim 1 above, and further in view of Fujii et al (U.S. Patent No.: 6,933,489) (hereinafter "Fujii").

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Gaalema and Yutaka as applied to claim 1 above, and further in view of Nunogaki et al (U.S. Patent No. 5,602,384) (hereinafter "Nunogaki").

Summary of the Response to the Office Action

Applicant has amended claim 1, and added new dependent claim 21, to differently describe embodiments of the disclosure of the instant application and/or to improve the form of the claims. Accordingly, claims 1, 3 and 6-21 remain currently pending with claims 1, 3, 6-10 and 21 currently under consideration and claims 11-20 currently withdrawn from consideration.

Rejections under 35 U.S.C. §§ 102(b) and 103(a)

Claims 1, 3, 6, 8 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gaalema in view of Yutaka. Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Gaalema and Yutaka as applied to claim 1 above, and further in view of Fujii.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Gaalema and Yutaka as applied to claim 1 above, and further in view of Nunogaki. Applicant has amended independent claim 1 to differently describe embodiments of the disclosure of the instant application and/or to improve the form of the claims.

In the response that was previously-filed on April 6, 2009 in this application, Applicant explained that independent claim 1 of the instant application describes an advantageous combination of features including a depression portion (see, for example 12 in Fig. 2) formed about a photodetecting region (see, for example 11 in Fig. 2). Applicant respectfully submitted that in this arrangement, a region including a high concentration layer (see, for example 3a in Fig. 2), a light absorbing layer (see, for example 5a in Fig. 2), a cap layer (see, for example 7a in Fig. 2) and a photodetecting region (see, for example 9 in Fig. 2) is separated from a peripheral semiconductor layer. Therefore, Applicant respectfully submitted that a parasitic capacitance may be suppressed and, as a result, a high speed drive element may be realized. Further, Applicant respectfully submitted that a wiring electrode formed in the depression portion (see, for example 12 in Fig. 2) may be realized as a part of the penetration electrode and, as a result, the penetration electrode may be easily formed.

On the contrary, Applicant respectfully submitted that in Gaalema, it is apparent from Fig. 4 that a depression (28) provided at a compound semiconductor layer is not formed around a radiation-ray detecting region 19.

In the previously-filed remarks, Applicant respectfully submitted that independent claim 1 of the instant application describes an advantageous combination of features including a photo-detector device utilizing a pn-junction (the first conductive type cap layer, photo-absorbing layer, high-concentration carrier layer and the second conductive type photodetecting region). On the

contrary, Applicant respectfully submitted that the arrangement disclosed in Gaalema is a light receiving device utilizing a photoconductivity effect.

In other words, Applicant respectfully submitted that in a pn-junction type photo-detecting device, as in the instant application's invention, a parasitic capacitance caused in the p-n junction portion decreases a driving speed of the device. However, in the light receiving device utilizing a photoconductivity effect as in Gaalema, as shown in Fig. 1, there is no resultant problem with regard to the decrease of the driving speed of the device caused by a parasitic capacitance because in the device of Gaalema a potential difference between detection contacts (22 and 19) which are provided so as to sandwich the n-conductive detecting layer 18 is detected.

Accordingly, Applicant respectfully submitted that Gaalema does not disclose, or even suggest, the provision of a depression portion so as to surround the photo-detecting region 11. Even further, Applicant respectfully submits that Gaalema does not disclose, nor even suggest, the provision of an electrode within the depression portion 12.

In the latest Office Action, while the Examiner has applied a new secondary reference under 35 U.S.C. § 103(a) in the rejection of independent claim 1, the Examiner still applies the same Gaalema reference as meeting the above-described important and advantageous features of the instant application. In addition, in reasserting Gaalema against these features of independent claim 1, the Examiner did not address Applicant's previously-submitted technical remarks in these regards, despite the detailed nature of those previously-filed remarks. Accordingly, such previously-filed remarks are repeated again in the foregoing discussion. Applicant respectfully requests that, in the event that the instant Amendment paper does not result in allowance, that the

next Office Action not be made a final rejection in light of the fact that the latest Office Action has not addressed these previously-filed technical remarks.

Nevertheless, in order to more particularly describe the associated features in these regards, Applicant has opted to further amend independent claim 1 in the instant Amendment paper to describe an advantageous combination of features that includes "the multilayer structure further comprises a depression formed so as to surround ~~about~~ the photodetecting region, and a wiring electrode arranged within the depression." Applicant respectfully submits that claim 1 in its previous form, and even more particularly as newly-amended, clearly distinguishes from the disclosure of Gaalema, which the Examiner applies as meeting these features of independent claim 1 of the instant application. These distinctions will now be further discussed.

Applicant respectfully submits that in newly-amended independent claim 1 of the instant application, a wiring is described as being made of metal and also the wiring is described as being provided between a substrate and a transparent substrate. However, Applicant respectfully submits that in Gaalema, it is a region formed by impurity diffusion.

In addition, Applicant respectfully submits that in newly-amended independent claim 1 of the instant application, a depression is described as being formed in a light receiving layer and surrounding a light receiving element. However, Applicant respectfully submits that in Gaalema, such a depression corresponds to a contact through hole.

Even further, Applicant respectfully submits that in newly-amended independent claim 1 of the instant application, the multilayer structure comprises a depression that is formed so as to surround the photodetecting region. Therefore, Applicant respectfully submits that the photodetecting region is separated from the multilayer structure. Applicant notes that this

arrangement is advantageous because in this arrangement a capacitor value may decrease and, as a result, high speed operation can be realized.

In addition, Applicant respectfully submits that none of the additionally applied references to Yutaka, Fujii and Nunogaki disclose, or even suggest, the provision of a depression structure surrounding a photo-detecting portion in a manner described in independent claim 1.

Accordingly, Applicant respectfully asserts that the rejections under 35 U.S.C. § 103(a) should be withdrawn because the applied art of record, including Gaalema, Yutaka, Fujii and Nunogaki, whether taken separately or combined, does not teach or suggest each feature of independent claim 1 of the instant application as newly-amended. As pointed out in MPEP § 2131, "'[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art.' In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)."

Applicant has added new dependent claim 21 to differently described embodiments of the disclosure of the instant application. More particularly, newly-added dependent claim 21 describes that a contact through hole (37, for example) is formed in a part of the depression. Also, newly-added claim 21 more particularly describes that electrodes connecting the first electrode with the second electrode are connected through the contact through hole.

CONCLUSION

In view of the foregoing, Applicant submits that the pending claims are in condition for allowance, and respectfully request reconsideration and timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicant's undersigned representative to expedite prosecution. A favorable action is awaited.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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